

FINAL Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility

Summary



Cover photograph and illustration identification, beginning at top center and going clockwise:

- Radioisotope tagged monoclonal antibodies, “smart bullets,” target malignant cells for diagnosis and treatment of diseases
- The Fast Flux Test Facility at the Hanford Site near Richland, Washington
- Illustration of a satellite that could use radioisotope power systems
- The High Flux Isotope Reactor at the Oak Ridge National Laboratory near Oak Ridge, Tennessee
- The Advanced Test Reactor at the Idaho National Engineering and Environmental Laboratory near Idaho Falls, Idaho
- Tip of a remote-handling arm, used for work in developing industrial and medical isotopes

AVAILABILITY OF THE FINAL NI PEIS

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This PEIS is accessible on the Office of Nuclear Energy, Science and Technology web site at www.nuclear.gov.



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Department of Energy

Washington, DC 20585

November 28, 2000

Dear Interested Party:

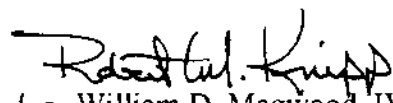
The Final Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility [NI PEIS] (DOE/EIS-0310) has now been completed. This document has been prepared in accordance with the National Environmental Policy Act and reflects consideration of comments received on the draft NI PEIS released in July 2000.

The Department of Energy (DOE) is responsible for undertaking research and development activities related to development of nuclear power for civilian use, meeting the nuclear material needs of other Federal agencies, and ensuring the availability of isotopes for medical, industrial, and research applications. The NI PEIS presents an evaluation of the potential environmental impacts associated with the proposed expansion of the nuclear irradiation capabilities for accomplishing civilian nuclear energy research and development activities, accommodating the projected growth in demand for medical and industrial isotopes, and production of plutonium-238 to support future National Aeronautics and Space Administration space exploration missions. In addition to the "No Action" alternative, DOE evaluated other alternatives that include using operating facilities within the DOE complex, building a new research reactor, building one or two accelerators, and restarting the Fast Flux Test Facility (FFTF) that is currently in standby status. In addition, the NI PEIS includes an alternative to permanently deactivate FFTF.

After careful consideration of public comments, environmental impacts, and programmatic objectives, DOE's preferred alternative is to use its existing nuclear facility infrastructure to the extent possible to pursue the missions outlined in the PEIS, i.e., Alternative 2, Option 7. DOE would reestablish domestic production of plutonium-238, as needed, using the Advanced Test Reactor in Idaho and the High Flux Isotope Reactor in Tennessee and would process irradiated plutonium-238 targets at the Radiochemical Engineering Development Center in Tennessee. DOE would permanently deactivate FFTF under the "Preferred Alternative." Lack of clear commitments from likely users discouraged the Department from planning to build new facilities or to restart the FFTF. Further details on the Preferred Alternative can be found in the summary and in section 2.8 of volume 1 of this NI PEIS.

We appreciate your continued participation in this decision-making process.

Sincerely,


for William D. Magwood, IV, Director
Office of Nuclear Energy, Science
and Technology



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Cover Sheet

Responsible Agency: United States Department of Energy (DOE)

Title: *Final Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility (NI PEIS)*

Locations: Idaho, Tennessee, Washington

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Abstract: Under the authority of the Atomic Energy Act of 1954, as amended, the DOE is responsible for ensuring the availability of isotopes for medical, industrial and research applications, meeting the nuclear material needs of other Federal agencies, and undertaking research and development activities related to development of nuclear power for civilian use. To meet these responsibilities, DOE maintains nuclear infrastructure capabilities that support various missions. Current estimates for the future needs of medical and industrial isotopes, plutonium-238, and research requirements indicate that the current infrastructure may soon be insufficient to meet the projected demands. DOE proposes to enhance these capabilities to provide for: (1) production of isotopes for medical and industrial uses, (2) production of plutonium-238 for use in advanced radioisotope power systems for future National Aeronautics and Space Administration (NASA) space exploration missions, and (3) the Nation's nuclear research and development needs for civilian application.

This NI PEIS evaluates the environmental impacts of a No Action Alternative (maintaining status quo), four alternative strategies to accomplish this mission, and an alternative to permanently deactivate the Fast Flux Test Facility (FFTF), with no new missions. Alternatives 2, 3, and 4 also include permanent deactivation of FFTF. The alternatives are:

No Action

1. Restart FFTF at Hanford, Washington
2. Use only existing operational facilities
3. Construct one or two new accelerators
4. Construct a new research reactor
5. Permanently deactivate FFTF (with no new missions)

The Preferred Alternative is Alternative 2, Option 7, Use Only Existing Operational Facilities. DOE would reestablish domestic production of plutonium-238, as needed, using the Advanced Test Reactor in Idaho and the High Flux Isotope Reactor in Tennessee, and would process irradiated plutonium-238 targets at the Radiochemical Engineering Development Center in Tennessee. DOE would permanently deactivate FFTF under the Preferred Alternative.

Public Comments: The Draft NI PEIS was issued for public review and comment on July 21, 2000. The comment period ended on September 18, 2000, although late comments were considered to the extent practicable. Public hearings were held to obtain comments on the Draft NI PEIS in Oak Ridge, Tennessee; Idaho Falls, Idaho; Hood River and Portland, Oregon; Seattle and Richland, Washington; and Arlington, Virginia. All comments were considered by DOE in preparing the Final NI PEIS, which also incorporates any new information received since issuance of the Draft NI PEIS. In response to comments on the Draft NI PEIS and as a result of information that was unavailable at the time of the issuance of the Draft PEIS, the Final PEIS contains revisions and new information, indicated by a sidebar in the margin. Volume 3 contains the comments received during the public review period for the Draft NI PEIS and DOE's responses to these comments. DOE will use the analyses presented in the Final NI PEIS as well as other information, including public input, costs, nonproliferation impacts, schedules, technical assurance, and other policy and programmatic objectives, in preparing the Record of Decision for accomplishing expanded civilian nuclear energy research and development and isotope production missions in the United States, including the role of FFTF. DOE will issue the Record of Decision no sooner than 30 days after the U.S. Environmental Protection Agency publishes a notice of availability of the Final NI PEIS in the Federal Register.

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List of Acronyms

AAA	Advanced Accelerator Applications	
AGS	Alternating Gradient Synchrotron	
ATLAS	Argonne Tandem - LINAC Accelerator System	
ATR	Advanced Test Reactor	
ATW	Accelerator Transmutation of Waste	
BLIP	Brookhaven LINAC Isotope Producer	
BNL	Brookhaven National Laboratory	
CANDU	Canadian Deuterium Uranium	
CEQ	Council on Environmental Quality	
CLWR	commercial light water reactor	
CPP	Chemical Processing Plant	
DOE	U.S. Department of Energy	
EA	environmental assessment	
EIS	environmental impact statement	
EPA	U.S. Environmental Protection Agency	
FDPF	Fluorinel Dissolution Process Facility	
FFTF	Fast Flux Test Facility	
FMEF	Fuels and Materials Examination Facility	
FONSI	finding of no significant impact	
Hanford	Hanford Site	
HFIR	High Flux Isotope Reactor	
INEEL	Idaho National Engineering and Environmental Laboratory	
INTEC	Idaho Nuclear Technology and Engineering Center	
IPF	Isotope Production Facility	
LANL	Los Alamos National Laboratory	
LANSCE	Los Alamos Neutron Science Center	
LINAC	linear accelerator	
NASA	National Aeronautics and Space Administration	
NE	DOE's Office of Nuclear Energy, Science and Technology	
NEPA	National Environmental Policy Act	
NEPO	Nuclear Energy Plant Optimization	
NERAC	Nuclear Energy Research Advisory Committee	
NERI	Nuclear Energy Research Initiative	
NI PEIS	<i>Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility</i>	
NRC	Nuclear Regulatory Commission	
ORNL	Oak Ridge National Laboratory	
ORR	Oak Ridge Reservation	
PCAST	President's Committee of Advisors on Science and Technology	
REDC	Radiochemical Engineering Development Center	
RPL	Radiochemical Processing Laboratory	
SRPS	Stirling radioisotope power system	
SRS	Savannah River Site	
SRTG	Small Radioisotope Thermoelectric Generator	
SST/SGT	safe, secure trailer/SafeGuards Transport	
TRIGA	training, research, isotopes General Atomics (reactor)	